

WHAT IS CLAIMED IS:

1. A concrete saw for use with a rotating cutting blade that rotates in a first plane to cut a groove in a concrete surface, comprising:

a first guide sized to fit in the groove and located in front of the cutting blade and positionable in the first plane, the first guide extending a distance sufficient to extend beyond the surface of the concrete cut by the saw during use of the saw; and

a second guide sized to fit in the groove and located behind the cutting blade and positionable in the first plane, the first guide extending a distance sufficient to extend beyond the surface of the concrete cut by the saw during use of the saw.

2. The concrete saw of Claim 1, wherein at least one guide comprises a sliding plate with the guide depending from the plate.

3. The concrete saw of Claim 1, wherein at least one guide comprises a rotating disk.

4. The concrete saw of Claim 3, wherein the at least one rotating disk has a distal edge with the disk tapered toward that distal edge.

5. The concrete saw of Claim 1, wherein at least one guide comprises a rotating disk having a diameter selected so that while it extends beyond the surface of the concrete it does not extend a distance sufficient to contact a bottom of a groove previously cut in the concrete surface.

6. The concrete saw of Claim 1, wherein at least one guide comprises a rotating disk having a rolling support on at least one side of the disk with the rolling support sized so it contacts the concrete surface during use of the saw to cut the concrete.

7. The concrete saw of Claim 1, wherein at least one guide comprises a rotating disk having a rolling support on opposing sides of the disk with the rolling supports each sized to contact the concrete surface during use of the saw to cut concrete.

8. The concrete saw of Claim 1, wherein each guide comprises a rotating disk having a rolling support on opposing sides of the disk with the rolling supports each sized to contact the concrete surface during use of the saw to cut the concrete.

9. The concrete saw of Claim 1, wherein at least one of the guides rotates about an axis substantially perpendicular to the concrete surface during cutting.

10. The concrete saw of Claim 1, wherein at least one of the guides rotates about an axis parallel to the rotational axis of the blade and also rotates about an axis substantially perpendicular to the concrete surface during cutting.

11. The concrete saw of Claim 1, wherein each of the guides rotates about an axis parallel to the rotational axis of the blade and also rotates about an axis substantially perpendicular to the concrete surface during cutting.

12. The concrete saw of Claim 1, wherein the blade rotates in an up-cut rotation exiting the concrete adjacent the first guide, and further comprising a diverter interposed between the blade and first guide to shield the first guide from debris from the blade.

13. The concrete saw of Claim 1, wherein the blade rotates in an up-cut rotation exiting the concrete adjacent the first guide, and further comprising a first support adjacent the first guide, the support extending from the saw a distance to abut the concrete adjacent the first guide during use of the saw, and a diverter interposed between the blade and first guide to shield the first support from debris from the blade.

14. The concrete saw of Claim 7, wherein a spring resiliently urges at least one of the supports toward the concrete surface during use of the saw.

15. The concrete saw of Claim 7, wherein a spring resiliently urges the support adjacent the second guide toward the concrete surface during use of the saw, and wherein the support adjacent the first guide is mounted to a shaft confined to move toward and away from the concrete along an axis substantially perpendicular to the concrete, with a stop located to limit the movement of that support during use of the saw.

16. A concrete cutting saw for use with a rotating cutting blade that rotates in a first plane, the cutting blade being mounted to a pivoting frame which is mounted to and pivots relative to a wheeled carriage frame, the cutting blade being configured to form the edges of a groove previously cut in a concrete surface to a first depth of the groove, the groove having a second depth, comprising:

first guide means for guiding the cutting blade along the groove, the first guide means extending into the groove a distance less than the second depth; and

second guide means for guiding the cutting blade along the groove, the second guide means extending into the groove a distance less than the second depth.

17. The concrete cutting saw of Claim 16, wherein at least one of the first and second guide means rotates about an axis parallel to the concrete surface during cutting.

18. The concrete cutting saw of Claim 16, further comprising first movable support means for supporting the first guide means on the concrete surface during cutting.

19. A concrete saw for shaping one or more exterior edges of a groove in a concrete surface to a first depth, the groove being cut in the concrete to a second depth which is greater than the first depth, comprising:

a rotating cutting blade having at least one cutting surface configured to shape at least one of the edges during use of the saw;

a first movable support connected to the saw and located to abut the concrete surface adjacent the groove and sufficiently close to the cutting blade that debris from the shaping of the at least one edge would be thrown by the blade so as to get between the movable support and the concrete;

a first guide connected to the saw and extending into the groove adjacent the first support a distance less than the second depth, the first guide being in the same plane as the cutting blade during use of the saw;

a first diverter connected to the saw and located so the diverter is interposed between the cutting blade and the first movable support member, the diverter being large enough and located close enough to the concrete to block debris from the blade from getting between the first movable support and the concrete.

20. The concrete saw of Claim 19, wherein the blade is an up-cutting blade and the first guide and first diverter are located on the leading end of the saw.

21. The concrete saw of Claim 19, further comprising a pilot on the cutting blade, the pilot having no abrasives on the sides of the pilot.

22. The concrete saw of Claim 19, further comprising:

a second guide connected to the saw and extending into the groove during use of the saw.

23. The concrete saw of Claim 22, further comprising a second movable support member located adjacent the second guide and abutting the concrete surface adjacent the groove during use of the saw.

24. The concrete saw of Claim 22, wherein the second guide is on the opposing side of the blade as the first guide during cutting.

25. The concrete saw of Claim 22, wherein the second guide is on the same side of the blade as the first guide during cutting.

26. The concrete saw of Claim 22, wherein the first and second guides are on the leading side of the blade during cutting.

27. The concrete saw of Claim 24, further comprising a movable support member located adjacent the second guide and abutting the concrete surface adjacent the groove during use of the saw.

28. The concrete saw of Claim 19, wherein the first guide comprises a rotating disc.

29. The concrete saw of Claim 26, wherein the first guide comprises a rotating disc.

30. The concrete saw of Claim 19, wherein the first guide is located on the leading side of the cutting blade, the first guide and the rotating cutting blade being connected to a common frame, the first movable support being mounted to the frame and adjustably positionable relative to the frame to vary the distance between the frame and the concrete surface.

31. A method of shaping one or more exterior edges of a groove cut in a concrete surface using a saw with a rotating cutting blade having a contour selected to provide a desired shape on at least one exterior edge, comprising:

placing a first guide in the groove, the first guide being connected to the saw;

placing a second guide in the groove, the second guide being connected to the saw, the first and second guides aligning the rotating blade with the groove;

using the first and second guides in the slot to guide the saw along the groove; and

rotating the cutting blade to shape the one or more exterior edges as the saw is guided along the groove.

32. The method of Claim 31, further comprising placing the first and second guides on opposing sides of the cutting blade during shaping of the one or more edges of the groove.

33. The method of Claim 31, further comprising placing the first and second guides on the same side of the cutting blade during shaping of the one or more edges of the groove.

34. The method of Claim 31, further comprising supporting the saw on the concrete adjacent to the first guide.

35. The method of Claim 34, wherein the supporting step uses at least one moving support.

36. The method of Claim 34, wherein the supporting step uses two rolling surfaces, one on each side of the first guide.

37. The method of Claim 35, further comprising diverting debris from the cutting blade adjacent the location where the cutting blade exits the groove so as to prevent the debris from passing between concrete and the moving support.

38. The method of Claim 31, further comprising rotating at least one guide about an axis perpendicular to the concrete surface in which the groove is located.

39. The method of Claim 31, further comprising adjusting the depth of cut of the cutting blade by adjusting the position of the movable support relative to the saw.